NSW NATIONAL PARKS & WILDLIFE SERVICE

Khappinghat National Park, Khappinghat Nature Reserve and Saltwater National Park

Plan of Management

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This plan of management was adopted by the Minister for the Environment on 6 August 2019.

OEH acknowledges that Khappinghat National Park, Khappinghat Nature Reserve and Saltwater National Park are in the traditional Country of the Biripi and Worimi peoples.

This plan of management was prepared by staff of the Hunter Central Coast Branch of the NSW National Parks and Wildlife Service (NPWS).

For additional information or any enquiries about this plan of management or Khappinghat National Park, Khappinghat Nature Reserve and Saltwater National Park, contact the NPWS Manning-Great Lakes Area Office at 78 Hargreaves Drive, Taree NSW 2430 or by telephone on (02) 6552 4097.

WARNING: Aboriginal and Torres Strait Islander readers are warned that this document contains images of deceased persons.

Front cover image: Boy fishing in Khappinghat Creek, Saltwater National Park. K Carter/DPIE.

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1. Introduction

1.1 Location, reservation and regional setting

Features	Description
Location	Khappinghat National Park, Khappinghat Nature Reserve and Saltwater National Park (referred to as 'the parks' in this plan) are located on the NSW mid north coast, approximately seven kilometres south-east of Taree.
Area	The parks cover 3547 hectares, including Khappinghat National Park (2020 hectares), Khappinghat Nature Reserve (1494 hectares) and Saltwater National Park (33 hectares). The parks include several roads that are vested in the Minister under Part 11 of the *National Parks and Wildlife Act 1974* (NPW Act) to ensure continued access to neighbouring land. These roads do not form part of the reserved area of the park but their management is subject to this plan, the National Parks and Wildlife Regulation and the requirements of the *Environmental Planning and Assessment Act 1979* (EPA Act) (See Section 5.1). The parks include 4.4 kilometres of coastline and 29.3 kilometres of estuarine foreshore, including the bed and intertidal zone for part of the Khappinghat Creek estuary. The intertidal zone adjoining the coastline, below the mean high water mark, is not included in the parks.
Reservation date	Reservation of the parks occurred over a number of stages: **1993** Khappinghat Nature Reserve (367 hectares) **1999** Additions to Khappinghat Nature Reserve (3147 hectares) **2004** Saltwater National Park (33 hectares) **2016** Recategorisation and reduction of part of Khappinghat Nature Reserve (to 1494 hectares) and creation of Khappinghat National Park (2020 hectares).
Previous tenure	The original Khappinghat Nature Reserve (reserved in 1993) covered 367 hectares of Crown land at Khappinghat Creek, including the bed of the estuary and land on the southern side of Khappinghat Creek. The North East Regional Forest Agreement covers the parks and provided for major additions to the park system, including the addition of 3147 hectares to Khappinghat Nature Reserve and the establishment of Saltwater National Park. The 1999 additions to Khappinghat Nature Reserve were formerly part of Kiwarrak State Forest and vacant Crown land adjacent to Khappinghat Creek. In 2016 parts of Khappinghat Nature Reserve, which were formerly part of Kiwarrak State Forest, were recategorised under the *National Parks and Wildlife Amendment (Adjustment of Areas) Act 2016* to national park. Saltwater National Park was formerly Crown land and is bordered by Khappinghat Nature Reserve to the west and south. The name 'Khappinghat' may be a derivation of 'Coppingithe' or 'Gapayn Gayith' in the Kattang language, which refers to 'having honey' (Lissarrague 2010).

Features	Description
Regional context	
Biogeographic region	The parks are located within the NSW North Coast Bioregion. Talawahl Nature Reserve is located to the south-west of the parks and together with Kiwarrak State Forest and naturally vegetated areas on private property, form part of a wildlife corridor between the coast and the Great Dividing Range to the south and west of Taree.
Surrounding land use	Surrounding land uses consist primarily of forestry, grazing, rural residential, urban areas and tourist resorts. The expanding coastal villages of Old Bar, Wallabi Point and Diamond Beach are situated nearby on the coast; the rural and rural residential areas of Rainbow Flat, Koorainghat and Purfleet are located west of the parks and Pampoolah and Bohnock are to the north.
Other authorities	The parks are located within the areas of the Purfleet/Taree Local Aboriginal Land Council, Hunter Local Land Services and MidCoast Council.

1.2 Statement of significance

The parks are significant because of the following values:

Aboriginal heritage

The parks are of great cultural importance to the Biripi and Worimi Aboriginal people and contain evidence of Aboriginal occupation for thousands of years. The diversity of landscapes and associated plant and animal communities, now protected within the parks, has provided for the spiritual, cultural and physical sustenance of Aboriginal people in perpetuity. Saltwater in particular, continues as a place of cultural and spiritual significance and as a coastal camping and ceremonial site. Many Aboriginal sites are recorded in the parks including artefact scatters, scarred trees, fish traps, middens and a burial site. Khappinghat Creek, Saltwater Headland and surrounds form a spiritually important cultural landscape. The Five Islands Walking Track is thought to follow part of a walking track network established by Aboriginal people in the past from Purfleet to Saltwater, and is an important component of the post-contact use of the area by the local Aboriginal community. Part of Saltwater National Park is used as a seasonal camping area for traditional owners, their families and their guests under a memorandum of understanding (MOU) established between the NSW National Parks and Wildlife Service (NPWS) and the Saltwater Tribal Council.

Approximately 13 hectares of Saltwater National Park including Wallabi Point (known locally as Saltwater Headland) and the picnic area and the seasonal camping area are listed as an Aboriginal Place under section 84 of the NPW Act.

Landscape and catchment values

Saltwater Headland, which separates Wallabi Beach and Saltwater Beach in the parks, is one of only three headlands between Wallis Lake and the Manning River. Allard Creek, Magpie Creek, Muddy Creek, Moor Creek, Koorainghat Creek, Duckhole Gully and Saltwater Gully are tributaries of Khappinghat Creek which together form a system of waterways supporting areas of rainforest, mangroves, salt flats, sedge and rush-dominated wetlands. Khappinghat Creek is a large undeveloped wetland and is one of only a few naturally opening and closing estuarine systems on the mid north coast of New South Wales.

Biological values

The parks contain four threatened ecological communities listed under the *Biodiversity Conservation Act 2016* (BC Act):

- Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregions
- Freshwater Wetlands on Coastal Floodplains on the NSW North Coast, Sydney Basin and South East Corner Bioregions
- Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions
- River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions.

The ecological community Littoral Rainforest and Coastal Vine Thickets of Eastern Australia is also listed as critically endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The parks record three plant species listed as endangered under the BC Act and EPBC Act, two plant species listed as Rare or Threatened Australian Plants (ROTAPs) by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and another 18 species of plants are either uncommon or close to their limits for northern or southern distribution.

The diversity of vegetation communities supports a range of native animals, including three endangered and 13 vulnerable animal species listed under the BC Act.

Recreation and tourism

Saltwater Headland is a regionally significant point break used for recreational surfing as well as club and competition surf events. The adjacent Saltwater Beach and Wallabi Beach are popular surfing and bathing areas. Saltwater National Park has facilities for car parking, picnics, special events and boat launching.

The parks provide access to Khappinghat Creek, which is used for boating, fishing and canoeing. The road and trail network is used by the local community for walking, cycling, vehicle touring and horse riding.

2. Management context

2.1 Legislative and policy framework

The management of national parks and nature reserves in New South Wales is in the context of the legislative and policy framework of NPWS, primarily the NPW Act and Regulation, the BC Act and NPWS policies.

Other legislation, strategies and international agreements may also apply to management of the parks. In particular, the EPA Act may require assessment of environmental impact of works proposed in this plan. The NSW *Heritage Act 1977* may apply to the excavation of known archaeological sites or sites with potential to contain historical archaeological relics. The Commonwealth EPBC Act may apply in relation to actions that impact on matters of national environmental significance, such as migratory and threatened species listed under that Act.

A plan of management is a statutory document under the NPW Act. Once the Minister has adopted a plan, the plan must be carried out and no operations may be undertaken in relation to the lands to which the plan relates unless the operations are in accordance with the plan. This plan will also apply to any future additions to Khappinghat National Park, Khappinghat Nature Reserve or Saltwater National Park. Should management strategies or works be proposed in future that are not consistent with this plan, an amendment to the plan will be required.

2.2 Management purposes and principles

National parks

National parks are reserved under the NPW Act to protect and conserve areas containing outstanding or representative ecosystems, natural or cultural features or landscapes or phenomena that provide opportunities for public appreciation, inspiration and sustainable visitor or tourist use and enjoyment.

Under the NPW Act (section 30E), national parks are managed to:

- conserve biodiversity, maintain ecosystem functions, protect geological and geomorphological features and natural phenomena and maintain natural landscapes
- conserve places, objects, features and landscapes of cultural value
- protect the ecological integrity of one or more ecosystems for present and future generations
- promote public appreciation and understanding of the park's natural and cultural values
- provide for sustainable visitor or tourist use and enjoyment that is compatible with conservation of natural and cultural values
- provide for sustainable use (including adaptive re-use) of any buildings or structures or modified natural areas having regard to conservation of natural and cultural values
- provide for appropriate research and monitoring.

The primary purpose of national parks is to conserve nature and cultural heritage. Opportunities are provided for appropriate visitor use in a manner that does not damage conservation values.

Nature reserves

Nature reserves are reserved under the NPW Act to protect and conserve areas containing outstanding, unique or representative ecosystems, species, communities or natural phenomena.

Under the NPW Act (section 30J), nature reserves are managed to:

- conserve biodiversity, maintain ecosystem functions, and protect geological and geomorphological features and natural phenomena
- conserve places, objects, features and landscapes of cultural value
- promote public appreciation, enjoyment and understanding of the reserve's natural and cultural values
- provide for appropriate research and monitoring.

The primary purpose of nature reserves is to conserve nature. Nature reserves differ from national parks in that they do not have the provision of visitor use as a management purpose or principle.

Saltwater Aboriginal Place

An area of approximately 13 hectares of Saltwater National Park including Wallabi Point (known locally as Saltwater Headland) and the picnic and seasonal camping area was declared an Aboriginal Place on 18 April 1986 under section 84 of the NPW Act. The Saltwater Aboriginal Place was dedicated in recognition of its ongoing significance to the Aboriginal community being a seasonal campsite with associated sacred and significant sites, including natural landscape features, stone artefacts, camp sites, a burial site and shell middens. Research leading to the dedication of the Aboriginal Place was based on traditional knowledge and oral history, historical, archival and contemporary records (Creamer H. [former staff member, Office of Environment and Heritage] pers. comm. 2011).

An Aboriginal Place is an area of special significance to Aboriginal culture. Declaration provides recognition of the significance of the area and its heritage values, which relate to the traditions, observances, customs, beliefs or history of Aboriginal people. It also affords the place the same protections under the NPW Act that apply to Aboriginal objects.

Aboriginal joint management

As traditional custodians of the land, Aboriginal people have a unique role to care for and manage Country. This role overlaps with NPWS legislative responsibilities to manage land for conservation. Partnerships recognise and capitalise on these mutual interests and responsibilities, including recognising that:

- All parks are part of Aboriginal peoples' Country and are places where Aboriginal people can care for their Country and access their Country and its resources. Given the history of dispossession in New South Wales, public lands and parks play an important role in the maintenance of Aboriginal culture and connection to Country. Meaningful engagement with Aboriginal communities on the management and use of parks is essential to ensure their needs in relation to their Country are met.
- Aboriginal communities obtain cultural, social and economic benefits through being involved in park management.
- In partnership, NPWS and the Aboriginal community are better able to protect and interpret cultural heritage and to apply Aboriginal knowledge to land management and the conservation of cultural and natural values.

- Visitors to parks have an enriched experience through interaction with Aboriginal people and an understanding of Aboriginal cultural values.

Saltwater continues to have significant Aboriginal cultural value.

> ***Aeons ago, long before white settlement, Aboriginals were free to roam the land, and come and go as they pleased. They lived in harmony with the land and nature. They travelled great distances to have their ceremonies and rituals to initiate the young boys into the tribe. Saltwater was one such place.***
>
> *(Davis-Hurst 1996)*

In 1995 the Saltwater Tribal Council made a native title claim for the Saltwater Aboriginal Place. Negotiations commenced between the then NSW Department of Lands, the former Greater Taree City Council (now MidCoast Council) and the Saltwater Tribal Council for an Indigenous land use agreement (ILUA). Following the reservation of Saltwater National Park in 2004 negotiations continued between NPWS and the Saltwater Tribal Council culminating in the registering of the Saltwater ILUA with the National Native Title Tribunal in 2005. The ILUA provided a legal framework for camping, collecting and gathering of medicinal and food plants plus ceremonial activities by the traditional owners of Saltwater. In 2008 the Federal Court of Australia upheld an appeal against the ILUA by a third party.

Subsequently, a MOU between NPWS and the Saltwater Tribal Council was developed to facilitate ongoing cultural use of the Saltwater area by traditional owners. The MOU was signed on 17 December 2008 and was subsequently extended by a revised MOU current until 19 April 2020.

The MOU facilitates joint management of Saltwater National Park and part of Khappinghat Nature Reserve (referred to as the ‘MOU area’ in this plan). The MOU provides for camping, collecting and gathering of medicinal and food plants and the conducting of ceremonial activities by the traditional owners of Saltwater and their guests. It establishes a system of joint management through the formation of the Saltwater Management Advisory Committee comprising representatives of traditional owners, other Aboriginal people, NPWS, Wallabi Point community and local surfing clubs. The Saltwater Management Advisory Committee meets at least four times a year to guide management of Saltwater National Park and part of Khappinghat Nature Reserve including assisting in the writing of this plan.

Lisa Corbyn (retired Chief Executive of the former OEH), Aunty Patricia Davis-Hurst (former Saltwater Elder, now deceased) and Kevin Carter (previous NPWS Area Manager) at the MOU Ceremony March 2010.

2.3 Specific management directions

In addition to the general principles for the management of nature reserves and national parks (see Section 2.2), the following specific management directions apply to the management of the parks:

- Protect Saltwater Aboriginal Place and other areas of spiritual and cultural importance in consultation with local Aboriginal people.
- Continue a system of joint management with Aboriginal people and local residents for the MOU area.
- Protect and conserve cultural heritage.
- Conserve the diverse native animals and plants, including threatened plants, animals and ecological communities.
- Provide visitor opportunities that are compatible with the conservation of the cultural landscape and native animals and plants, including threatened plants, animals and ecological communities and sensitive habitats.
- Promote the understanding and enjoyment of the significant values of the parks.
- Control and where possible eliminate pest species in cooperation with other relevant authorities and neighbouring landholders.
- Protect life and property and community assets from the adverse impacts of fire, while managing fire regimes to maintain and protect biodiversity and cultural heritage.
- Protect the water catchment values of the Khappinghat Creek estuarine system through the planning and implementation of catchment protection and rehabilitation activities and management of vegetation, fire, roads, trails and tracks, waterway activities and visitor areas in the parks.

3. Values

This plan aims to conserve both natural and cultural values of the parks. The location, landforms and plant and animal communities of an area have determined how it has been used and valued by both Aboriginal and non-Aboriginal people. These values may be attached to the landscape as a whole or to individual components, for example to plant and animal species used by Aboriginal people.

To make this document clear and easy to use, various aspects of natural heritage, cultural heritage, threats and ongoing use are dealt with individually but their interrelationships are recognised.

3.1 Geology, landscape and hydrology

In the early Pleistocene, Saltwater Headland formed a narrow peninsular surrounded by extensive estuarine systems. This was at a time when Diamond Head, Grants Head, Korogoro Point and Smoky Cape to the north and Cape Hawke in the south were offshore islands. By the early Holocene, these offshore islands were connected to the mainland and Saltwater Headland was surrounded by low sandy swales and dunes (Dodkin et al. 2007).

The parks are located on a flat to gently undulating coastal plain extending from the mean high tide mark on Saltwater Beach and Wallabi Beach to the low hills reaching a maximum elevation of over 100 metres above sea level east of the Pacific Highway. This topography includes a coastal headland, beach dunes and swales, the Khappinghat Creek estuary, tidal flats, stream channels, drainage depressions, valley flats and hills.

These landscape elements are a product of the underlying geology of the parks, which consists of Quaternary deposits of quartzose sand and silt and Devonian sediments of mudstone, claystone, conglomerate, greywacke, tuff and chert (Brunker et al. 1970; FCNSW 1984). Soils within the parks comprise Brown, Red, Yellow, Gley and Lateritic Podosols, which have developed in-situ from the parent material (Elliott 1979; FCNSW 1984). Quaternary deposits occur in poorly drained areas around Khappinghat Creek.

Allard Creek, Magpie Creek, Muddy Creek, Moor Creek, Koorainghat Creek, Duckhole Gully and Saltwater Gully are tributaries of Khappinghat Creek, which together form a system of waterways supporting areas of rainforest, mangroves, salt flats, sedge and rush-dominated wetlands. These low lying areas typically form potential acid sulfate soils through natural processes under repeated waterlogging of organic matter under tidal conditions. These soils contain iron sulfides or sulfidic material that has the potential to oxidise and release sulfuric acid to the surrounding environment if exposed. Provided a vegetation layer is preserved and they are not disturbed, potential acid sulfate soils do not pose a threat to water quality or recreational use of the waterways (DPI n.d.).

Khappinghat Creek is a large, undeveloped wetland and is one of only a few naturally opening and closing estuarine systems on the mid north coast of New South Wales. Estuaries can be closed to the sea for large periods of time, and the absence of tidal flushing can create problems with water quality. For these reasons, they are highly susceptible to accumulation of nutrients, and their catchments need careful management to minimise inputs. Nutrients associated with soil can be a major source of nutrients in such systems.

Warwiba Creek and Halls Creek flow to the north and are tributaries of the Manning River.

The geological composition of the parks provided raw materials (mudstone, chert and tuff) for stone tool manufacturing, which is evidenced by vast stone artefact scatters on the shores of Khappinghat Creek. These artefacts indicate that the area has been used by Aboriginal people for thousands of years. Springs and groundwater in the parks provide a continuing

source of fresh water for Aboriginal people. Khappinghat Creek, Saltwater Headland and surrounds is a spiritually important cultural landscape.

Issues

- Dunal features at Wallabi Beach and Saltwater Beach are being damaged by human trampling.
- Inappropriate use of roads and management trails, particularly in low, swampy areas, is contributing to soil erosion and turbidity, with potential harmful effects in Khappinghat Creek. Removal of vegetation through inappropriate use also has the potential to disturb acid sulfate soils.
- Beach dune recession is occurring within the parks and may be a result of more severe storm events associated with climate change (see also Section 4.3).

Desired outcomes

- Landscape and catchment values are protected.
- The effects of climate change on natural systems are minimised.

Management response

3.1.1 Monitor sites of unregulated human trampling and implement dune stability programs such as fencing and brush-matting when required.

3.1.2 Provide and maintain public roads, park roads and management trails in accordance with Map 1.

3.1.3 Close and rehabilitate tracks and trails not shown on Map 1.

3.1.4 Monitor roads and trails, and close areas that are a risk to park users or are showing signs of unacceptable damage.

3.1.5 Monitor coastline erosion and implement appropriate dune stabilisation works when required.

3.2 Native plants

Thirty-eight vegetation communities have been mapped within the parks and a number of these communities contain plant species of conservation significance; many are at the limit of their distribution or are disjunct occurrences (Griffith & Wilson 2000). Ecosystems that dominate more elevated, drier areas are dry sclerophyll forests of blackbutt (*Eucalyptus pilularis*), ironbark (*E. siderophloia*), grey gum (*E. propinqua*), white mahogany (*E. acmenoides*) and pink bloodwood (*Corymbia intermedia*). Rudder's box (*E. rudderi*), listed under Rare or Threatened Australian Plants (Briggs & Leigh 1996) is recorded in these forests particularly in the south of the parks. On sandy, well-drained locations a dry sclerophyll forest community dominated by red gum (*E. tereticornis*) and pink bloodwood occurs. Dry sclerophyll woodlands consisting of scribbly gum (*E. signata*) and pink bloodwood are evident in sandy areas around Khappinghat Creek. Wet sclerophyll forest communities occur in protected gullies in the west of the parks and in other moist sites on the coastal plain. Brush box (*Lophostemon confertus*), flooded gum (*E. grandis*), tallowwood (*E. microcorys*), turpentine (*Syncarpia glomulifera* subsp. *glomulifera*), blackbutt and pink bloodwood typically dominate these communities. These areas constitute some of the most economically important native forests in Australia and were subject to selective harvesting systems prior to the reservation of the parks.

Forested wetlands surrounding Khappinghat Creek and its tributaries include swamp sclerophyll forests dominated by swamp mahogany (*E. robusta*), swamp oak (*Casuarina*

glauca), red mahogany (*E. resinifera*) and the paperbark trees *Melaleuca nodosa, M. sieberi* and broad-leaved paperbark (*M. quinquenervia*). The saltmarsh complexes adjacent to Khappinghat Creek include areas of sedges, rushes and tussock grasslands dominated by bare twig-rush (*Baumea juncea*), sea rush (*Juncus kraussii*), common reed (*Phragmites australis*), samphire (*Sarcocornia quinqueflora* subsp. *quinqueflora*) and marine couch (*Sporobolus virginicus*). These wetland and forested wetland areas include Freshwater Wetlands on Coastal Floodplains, Swamp Sclerophyll Forest on Coastal Floodplains and River-flat Eucalypt Forest on Coastal Floodplains that when found in the NSW North Coast, Sydney Basin and South East Corner Bioregions are threatened ecological communities under the BC Act. These areas also act as pollutant filters contributing to the water quality of creeks draining surrounding rural and rural residential areas into Khappinghat Creek.

The low, flat, sandy coastal plain and headland between the townships of Diamond Beach to the south and Wallabi Point within the parks support areas of shrubland, dry wallum sand heath and wet heath communities. The shrublands and wet and dry heaths are dominated by wallum banksia (*Banksia aemula*), coast banksia (*B. integrifolia*), heath banksia (*B. ericifolia*), coast teatree (*Leptospermum laevigatum*), swamp paperbark (*M. ericifolia*), *M. nodosa* and coastal wattle (*Acacia sophorae*). Also recorded within these communities are the dwarf heath casuarina (*Allocasuarina defungens*) listed as endangered under the BC Act and the tapering-leaved bottlebrush *Callistemon acuminatus* listed under Rare or Threatened Australian Plants (Briggs & Leigh 1996).

Littoral rainforest is found within Saltwater National Park on and adjacent to Saltwater Headland. This vegetation remnant was once a large stand of rainforest that also occupied an adjacent area of the park (Griffith & Wilson 2000) but was cleared for the development of a recreation reserve in the 1970s. Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregions is listed as a threatened ecological community under the BC Act and as critically endangered under the EPBC Act. This community is dominated by tuckeroo (*Cupaniopsis anacardioides*), Port Jackson fig (*Ficus rubiginosa*), Fraser's fig (*F. fraseri*), lilly pilly (*Acmena smithii* syn. *Syzygium smithii*), red olive plum (*Elaoedendron australe*), broad-leaved paperbark, swamp oak and large mock-olive (*Notelaea longifolia*). A number of littoral rainforest species are present in the understorey of wet sclerophyll forests and in coastal hind dune areas elsewhere in the parks. Recorded within littoral rainforest in the parks are the white-flowered wax plant (*Cynanchum elegans*) and magenta lilly pilly (*Syzygium paniculatum*), which are listed under the BC Act and EPBC Act (see Table 1).

Table 1: Threatened and significant plant species recorded in the parks

Common name	Scientific name	BC Act status	EPBC Act status
Dwarf heath casuarina	*Allocasuarina defungens*	Endangered	Endangered
Magenta lilly pilly	*Syzygium paniculatum*	Endangered	Vulnerable
Rudder's box	*Eucalyptus rudderi*	–	–
Tapering-leaved bottlebrush	*Callistemon acuminatus*	–	–
White-flowered wax plant	*Cynanchum elegans*	Endangered	Endangered

BC Act = NSW Biodiversity Conservation Act
EPBC Act = Commonwealth Environment Protection and Biodiversity Conservation Act

Strategies for the recovery of threatened species, populations and ecological communities have been set out in a statewide *Biodiversity Conservation Program* (formerly known as the *Threatened Species Priorities Action Statement* [DECC 2007]). These actions are currently prioritised and implemented through the *Saving our Species* program, which aims to maximise the number of threatened species that can be secured in the wild in New South Wales for 100 years (OEH 2013c).

Key actions to recover Littoral Rainforest, Freshwater Wetlands on Coastal Floodplains, Swamp Sclerophyll Forest on Coastal Floodplains, River-flat Eucalypt Forest on Coastal Floodplains, white-flowered wax plant and magenta lilly pilly include ensuring an appropriate fire regime (preventing fires from damaging populations) and habitat rehabilitation through weed removal and visitor controls. A key action to recover dwarf heath casuarina is to ensure an appropriate fire regime. Key actions for wetland and swamp forest communities are to ensure natural tidal flows and unmodified drainage regimes.

The parks have been used by Aboriginal people for thousands of years. The exceptional diversity and availability of plant materials in close proximity provided for everyday needs including food, tools, medicines, net making, clothing, carrying and storage equipment. As an example, paperbark (*Melaleuca* spp.) was used for carrying hot coals and water, as blankets and groundsheets, and for shelters.

Issues

- European land management practices have had a negative impact on the parks' native vegetation through forestry activities, and land clearing for roads, infrastructure and public recreation areas.
- The most significant threats to vegetation structure and health are weed invasion, too-frequent fires and the use of vehicles and horses off formed roads.
- Limited vegetation surveys have been undertaken to identify and map threatened species and threatened ecological communities within Khappinghat Nature Reserve.
- A number of small hardwood plantations, primarily comprising dry blackbutt, which is a species endemic to the NSW mid north coast, were established in the parks in the early 1970s. These plantations have considerable in-growth of endemic vegetation.
- Visitor use and associated management operations in the MOU area have encroached into adjacent Littoral Rainforest, Swamp Sclerophyll Forest and coastal heath communities.

Desired outcomes

- All vegetation communities are managed as part of a cultural landscape.
- Populations of significant plant species and ecological communities are conserved.
- Negative impacts on threatened species are minimised.
- The habitat and populations of all threatened plant species are protected, maintained and where possible enhanced.
- Structural diversity, habitat values and cultural landscape are restored in degraded areas.

Management response

3.2.1 Implement relevant strategies in the *Biodiversity Conservation Program* for threatened species, populations and ecological communities present in the parks.

3.2.2 Encourage surveys for threatened and significant plant species and ecological communities with priority given to predicted habitat for threatened species in the parks.

3.2.3 Allow for the continued natural return of endemic vegetation in all former plantations within the parks.

3.2.4 Revegetate parts of the MOU area to enhance adjoining Littoral Rainforest, Swamp Sclerophyll Forest and coastal heath communities in consultation with the Saltwater Management Advisory Committee.

3.3 Native animals

The parks are within the transition between subtropical and warm temperate climatic zones and include a range of ecosystems from ocean beach, coastal estuary and low forested foothills and plains. Together with Talawahl Nature Reserve, Kiwarrak State Forest and naturally vegetated areas on adjoining private property, the parks form part of a wildlife corridor between the coast and the Great Dividing Range to the south and west of Taree. These attributes support a large diversity of native animals including species listed under the BC Act, EPBC Act and international treaties covering migratory bird species such as the Japan and Australia Migratory Bird Agreement and the China and Australia Migratory Bird Agreement.

The coast of the parks supports significant marine-dependent species including several threatened bird species (see Table 2). Estuarine and freshwater habitats in Khappinghat Creek and its tributaries provide nesting sites for wading birds and habitat for a range of amphibians, reptiles and mammals such as platypus (*Ornithorhynchus anatinus*). Many species of fish lay their eggs and develop through their larval and juvenile stages in these areas where abundant invertebrates such as crustaceans, molluscs and insects occur. The fish nurseries in turn support a range of waterbirds (Keith 2004) including the threatened black-necked stork (*Ephippiorhynchus asiaticus*).

The diverse forest associations within the parks support a range of ground and arboreal animals including snakes, lizards, bandicoots, antechinus, wallabies, possums, gliders, forest birds and bats. Species of significance include koala (*Phascolarctos cinereus*), brush-tailed phascogale (*Phascogale tapoatafa*), common planigale (*Planigale maculata*), yellow-bellied glider (*Petaurus australis*) and the threatened squirrel glider (*Petaurus norfolcensis*) (see Table 2).

The parks provide suitable habitat for a number of additional threatened species to those shown in Table 2, including the grass owl (*Tyto capensis*), which has been recorded immediately adjacent to the parks.

Previous forestry practices over much of the parks have resulted in changes to species composition and vegetation structure and a reduction in hollow-bearing trees, both standing and on the ground.

Key threats to native animal species include inappropriate fire regimes, introduced species, erosion, stream degradation, habitat fragmentation and inappropriate human activities. Protection of habitat and appropriate fire regimes are a major determinant of the distribution and abundance of native animals in the parks.

Table 2: Threatened and significant animal species recorded in the parks

Common name	Scientific name	BC Act status	EPBC Act status
Black-necked stork	*Ephippiorhynchus asiaticus*	Endangered	–
Brush-tailed phascogale	*Phascogale tapoatafa*	Vulnerable	–
Common blossom-bat	*Syconycteris australis*	Vulnerable	–
Common planigale	*Planigale maculata*	Vulnerable	–
Flesh-footed shearwater	*Ardenna carneipes*	Vulnerable	–

Common name	Scientific name	BC Act status	EPBC Act status
Glossy black-cockatoo	*Calyptorhynchus lathami*	Vulnerable	–
Grey-headed flying-fox	*Pteropus poliocephalus*	Vulnerable	Vulnerable
Koala	*Phascolarctos cinereus*	Vulnerable	Vulnerable
Little tern	*Sterna albifrons*	Endangered	Migratory, Marine
Eastern osprey	*Pandion cristatus*	Vulnerable	–
Pied oystercatcher	*Haematopus longirostris*	Endangered	–
Powerful owl	*Ninox strenua*	Vulnerable	–
Square-tailed kite	*Lophoictinia isura*	Vulnerable	–
Squirrel glider	*Petaurus norfolcensis*	Vulnerable	–
Wompoo fruit-dove	*Ptilinopus magnificus*	Vulnerable	–
Yellow-bellied glider	*Petaurus australis*	Vulnerable	–

BC Act = NSW Biodiversity Conservation Act
EPBC Act = Commonwealth Environment Protection and Biodiversity Conservation Act

As for threatened plants, strategies for the recovery of threatened animal species and populations have been set out in the statewide *Biodiversity Conservation Program* and are currently prioritised and implemented through the *Saving our Species* program. The parks support a range of native animal populations that have been used by Aboriginal people for thousands of years. These animals provided for everyday needs including food, tools, medicines and clothing. Aboriginal people have a spiritual connection to animals, which has contributed to management and conservation of all native animal species in the parks.

Issues

- European land management practices have had a negative impact on the parks' native animal habitat through forestry activities, and land clearing for roads, infrastructure and public recreation areas.
- The most significant threats to native animals are pest animals, too-frequent fires, climate change, neighbouring land uses and the use of vehicles off formed roads.
- Prior forest management practices have resulted in changes to species composition and vegetation structure and a reduction in hollow-bearing trees, both standing and on the ground.

Desired outcomes

- All native animal populations are managed as part of the cultural landscape.
- Populations of significant animal species are conserved through the enhancement of forest structures and diversity leading to improved habitat for native animal populations.
- Negative impacts on threatened species are minimised.
- The habitat and populations of all threatened plant and animal species are protected and maintained.
- Structural diversity and habitat values are restored in degraded areas.

Management response

3.3.1 Implement relevant strategies in the *Biodiversity Conservation Program* for threatened species, populations and ecological communities present in the parks.

3.3.2 Encourage surveys for threatened and significant animal species with priority given to predicted habitat for threatened species in the parks.

3.3.3 Rehabilitate disturbed and/or degraded areas in the parks to restore structural diversity and habitat values for significant native animal populations.

3.4 Aboriginal heritage

The Biripi and Worimi Aboriginal people of the Kattang language group have a traditional connection with the Country that includes the parks. The land, water, plants and animals within a landscape are central to Aboriginal spirituality and contribute to Aboriginal identity. Aboriginal communities associate natural resources with the use and enjoyment of foods and medicines, caring for the land, passing on cultural knowledge, kinship systems and strengthening social bonds. Aboriginal heritage and connection to nature are inseparable and need to be managed in an integrated manner across the landscape.

The parks have been used by Aboriginal people for thousands of years, providing an abundance of fresh water, food, medicine and shelter. Fish traps, scarred trees, middens, ceremonial and camping sites, artefacts and a burial site have been recorded in the parks. Most known sites have close association with Khappinghat Creek, the coast and Saltwater, the traditional camping area in Saltwater National Park. Aboriginal sites are places with evidence of Aboriginal occupation or that are related to other aspects of Aboriginal culture. They are important as evidence of Aboriginal history and as part of the culture of local Aboriginal people. Khappinghat Creek, Saltwater Headland and surrounds form a spiritually important cultural landscape.

Saltwater is an important meeting and ceremonial area. Following the creation of the Aboriginal mission at Purfleet in 1900, Saltwater remained a destination for camping at Christmas time each year where people ‘returned’ to old (i.e. more ‘traditional’) ways of doing things and where they experienced a freedom usually absent in their daily lives on the mission (Byrne & Nugent 2004). Prior to the advent of mechanised transport, Aboriginal people walked and rode to Saltwater from Purfleet. The Five Islands Track is thought to be part of one such route.

> ***The white man has no idea what places like Saltwater mean to the Koori people, you cannot put a price tag on a place like that, with its priceless history. Just being there is a spiritual experience for people.***
>
> *(Davis-Hurst 1996)*

On 18 April 1986, an area of approximately 13 hectares of what is now part of Saltwater National Park was declared an Aboriginal Place under section 84 of the NPW Act. The Saltwater Aboriginal Place includes Saltwater Headland and the picnic and seasonal camping area (see Map 1). The tradition of meeting, ceremonies and camping by Aboriginal people continues today under a MOU.

While the NSW Government has a legal responsibility for the protection of Aboriginal sites and places under the NPW Act, it acknowledges the right of Aboriginal people to make decisions about their own heritage. It is therefore policy that Aboriginal communities be consulted and involved in the management of Aboriginal sites, places and related issues, and the promotion and presentation of Aboriginal culture and history.

The parks are within the Purfleet/Taree Local Aboriginal Land Council area, which includes a number of elders' and community groups, some of which have formed for native title purposes. One such group, the Saltwater Tribal Council represents traditional owners of Saltwater National Park and part of Khappinghat Nature Reserve (see Section 2.2).

Issues

- European land management practices have had a negative impact on Aboriginal cultural heritage values through forestry activities, and land clearing for roads, infrastructure and public recreation areas.
- Key threats to Aboriginal cultural heritage values are fire, visitor impacts and sea level rise associated with climate change.
- The location of the walking route from Purfleet to Saltwater is not widely known. The Five Islands Track within the parks is thought to be part of the route that is likely to now traverse state forest, private property and Crown land.

Desired outcomes

- The parks are managed as a cultural landscape.
- Significant Aboriginal places and values are identified and protected.
- Aboriginal people are involved in management of the Aboriginal cultural heritage values of the parks.
- Impacts on Aboriginal cultural heritage values are minimised.
- Understanding of the cultural heritage values of the parks is improved.

Management response

3.4.1 Continue to consult and involve relevant Aboriginal community organisations and custodial families in the management of Country, including the management of Aboriginal sites, places, cultural and natural values.

3.4.2 Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact Aboriginal sites or values.

3.4.3 Encourage further research into the Aboriginal cultural heritage values of the parks with the relevant Aboriginal community organisations and custodial families.

3.4.4 Support relevant Aboriginal community organisations and custodial families to locate, map and interpret those sections of the Purfleet/Saltwater traditional walking route within the parks. Subject to a favourable environmental assessment and the support of adjoining landholders and land managers, delineate the walking route within the parks.

3.4.5 Continue joint management arrangements for Saltwater National Park and part of Khappinghat Nature Reserve in accordance with the MOU with the Saltwater Tribal Council.

3.4.6 Provide for meetings, ceremonies and camping by Aboriginal people in accordance with the MOU.

3.5 Historic heritage

Heritage places and landscapes are made up of living stories as well as connections to the past, which can include natural resources, objects, customs and traditions that individuals and communities have inherited and wish to conserve for current and future generations. Cultural heritage comprises places and items that may have historic, scientific, cultural,

social, archaeological, architectural, natural or aesthetic significance. NPWS conserves the significant heritage features of the parks that it manages.

In 1770 Captain James Cook sailed past the Manning coastline in the *Endeavour* making notes on the many small campfires which were evident from sections of the NSW coastline. In 1818, the explorer John Oxley led a party which mapped much of New South Wales. Their trek included a section of the NSW coast between the Hastings River and Port Stephens. From Oxley's records, it is believed his party travelled along the coastline now within the parks on 25 October 1818 prior to camping for the night near Black Head, six kilometres south of the parks (Whitehead 2004).

In the 1800s and early 1900s, much of the area now dedicated as Khappinghat National Park was subject to largely unregulated timber harvesting that focused initially on red cedar (*Toona ciliata*) and later moved to durable hardwood species. The 1907 Royal Commission into forestry indicated that ironbark, tallowwood and grey gum, such as those in the parks, were favoured for common uses such as girders, sleepers and for heavy construction (FCNSW 1984).

From the early part of the 19th century through to 1920, many homestead farm selections within the parishes of Beryan and Bohnock were forfeited to the Crown for failure of rental payments and were subsequently dedicated as Kiwarrak State Forest (FCNSW 1984). With the creation of the Forestry Commission in 1916, use of the timber resources in the forests was recorded and regulated and in the 1950s quota control was imposed.

The land east and south-east of Kiwarrak State Forest remained private freehold and Crown land which is now included in the parks as part of Khappinghat Nature Reserve and Saltwater National Park. In 1907, an area of approximately 1000 acres (404.69 hectares) extending from Old Bar Road in the north to Khappinghat Creek in the south was purchased by William NG Palmer. A cottage was constructed during World War I and was subsequently used as a holiday cottage by the Palmer family until the 1950s. The cottage was later vandalised and burnt in a wildfire but the ruins of the cottage are visible today. The estate was later sold and subdivided with much of the original landholding becoming small freehold acreages. A remaining area of 120 acres (48.56 hectares) north of Khappinghat Creek, between Saltwater Gully and Duckhole Gully, including the ruins of Palmers Cottage, was purchased by the former Greater Taree City Council (now MidCoast Council) and Department of Lands in 1982 for addition to the Saltwater Recreation Reserve (Saltwater Reserve Advisory Committee 1994).

Throughout much of the period from 1900 to the late 1960s, the area now comprising Saltwater National Park had almost exclusively been used by Aboriginal people but by the late 1960s it gradually became popular with surfers (Byrne & Nugent 2004). At that time, feral goats (*Capra hircus*), which occupied Saltwater Headland were hunted, providing a source of food for the visiting surfers and Aboriginal people. A small hut that doubled as a shop was established near the headland. The hut was occupied by George Bunyah who lived with his brother and niece at Saltwater for a number of years selling groceries at Christmas (Davis-Hurst 1996, 2010).

In the early 1970s Saltwater became a public reserve under the management of the former Manning Shire Council (now MidCoast Council). The council cleared and under-scrubbed much of the Littoral Rainforest in the reserve for development of parking areas, beach access and picnic facilities. By the mid to late 1970s, Saltwater had become a regionally important recreational destination for the people of the Manning and visitors to the area.

In 1993, an area of 367 hectares of Crown land on the southern side of Khappinghat Creek and east of Moor Creek was dedicated as Khappinghat Nature Reserve. In 1999 the North East Regional Forest Agreement provided for major additions to the park system, including

the addition of part of Kiwarrak State Forest and Crown land including the Palmers estate, forming a total area for Khappinghat Nature Reserve of 3514 hectares. The regional forest agreement also provided for the establishment of Saltwater National Park in 2004.

The Palmers Cottage ruin located on the Five Islands Trail, and the pedestrian bridge over Saltwater Gully on the Five Islands Walking Track, have not been assessed to determine their historic heritage significance. Before decisions are made about the future management of these heritage items, an assessment of significance is required. Should either of these items be found to be of national, state or high local historic heritage significance, a conservation management plan will be prepared. For simple structures of local heritage significance, a heritage action statement will be prepared to guide future management and works.

Issues

- The ruins of the Palmers Cottage and a pedestrian bridge on the Five Islands Walking Track may be of cultural significance.

Desired outcomes

- Negative impacts on historic heritage values are minimised.
- Understanding of the historic heritage values of the parks is improved.
- Significant historic features are appropriately conserved and managed.

Management response

3.5.1 Record historic sites and assess their significance, with priority given to Palmers Cottage ruin and the pedestrian bridge over Saltwater Gully. Undertake emergency stabilisation works as required until the formal heritage assessment process is complete.

3.5.2 Continue to maintain the trail surrounding the Palmers Cottage ruin and undertake other activities necessary to protect the ruin from fire.

3.5.3 Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact historic sites and places.

3.6 Visitor use

NPWS parks and reserves provide a range of opportunities for recreation and tourism including opportunities for relaxation and renewal as well as appropriate active pursuits. Visitor opportunities provided in the natural and undeveloped settings afforded by the parks system are mostly those at the low-key end of the spectrum. NPWS aims to ensure that visitors enjoy, experience and appreciate the parks at the same time as conserving and protecting park values.

The parks provide opportunities for visitation in a natural coastal setting, which includes sandy beaches, a rocky headland, creeks and an estuary. Most visitor activity in the parks is concentrated at the day use picnic area and MOU camping area in Saltwater National Park and the adjacent Wallabi Beach, Saltwater Beach and Khappinghat Creek. Vehicle data records indicate vehicle entry to Saltwater National Park exceeds 90,000 vehicles a year. Saltwater Headland is a regionally significant point break used for recreational surfing as well as club and competition surf events which are also conducted on the adjacent Saltwater Beach and Wallabi Beach. Peak visitation occurs during public and school holiday periods particularly in late spring and summer. During the Christmas to New Year period, visitation exceeds the capacity of the day use picnic area and MOU camping area in Saltwater National Park.

Activities undertaken in the parks include walking, cycling, vehicle touring, horse riding, boating, fishing, surfing, swimming and picnicking. The day use area and the seasonal MOU camping area provide for family picnics, special events, sporting club and school functions. Facilities include car parking, picnic tables, gas barbecues, beach showers and toilets.

The parks are located within the Manning Valley Tourism Region. Saltwater National Park is promoted as one of the key beach destinations. In 2015 the region's population was 49,095 (ABS Estimated Resident Population). The rate of increase between 2011 and 2036 is forecast to be 47.36% (.id consulting 2015–16). At this rate, the population is estimated to reach over 70,000 people by 2036. The position of the parks adjacent to rapidly expanding coastal villages with high seasonal levels of inbound tourism means that potential park visitation demand from the local population is high.

The parks have public road access from Old Bar Road, the Pacific Highway, Saltwater Road, Godfrey Hill Road, Woollards Road, Follies Road, Metz Road, Byamee Road, Ramseys Road, Northern Road, Link Road, Jack Wards Road, Gilfillans Road, Half Chain Road, Tallwood Drive and Old Soldiers Road.

Visitation to the parks needs to be carefully managed as visitors can negatively impact the natural and cultural values of the area. The nature and severity of potential visitor impacts depends on the type, frequency and interaction of activities, visitor numbers and behaviour, site capacity and durability and the sensitivity of the area's natural and cultural values. The road and trail network within the parks was developed prior to the reservation of the parks to facilitate timber harvesting and access for fishing and boat launching. Vehicle use of roads and management trails particularly in low, swampy areas is contributing to soil erosion and turbidity and damage to sensitive vegetation. This is a particular issue in the parks where informal boat ramps occur on Duckhole Gully, Magpie Creek, Moor Creek and Khappinghat Creek.

Planning for visitor use of the parks focuses on providing a range of visitor opportunities such as bushwalking and nature appreciation within Khappinghat Nature Reserve and horse riding within Khappinghat National Park, and providing for beach and estuary access, large group activities and family picnics at Saltwater National Park.

Other areas managed by NPWS, other authorities and private operators in the region provide opportunities for a range of recreation activities. Opportunities for bushwalking, four-wheel driving, cycling, boating and horse riding are available in adjacent and nearby state forests, state parks and other Crown lands.

Camping

Saltwater, the traditional camping area that is now within Saltwater National Park, has been almost exclusively used by Aboriginal people for camping from a time preceding European settlement. Since the park was reserved, camping has occurred during the Christmas and Easter school holiday periods. In 2010, the revised MOU provided for camping in the October and Christmas school holiday periods by traditional owners and their guests (see Section 2.2). Other than this, camping is not permitted in Saltwater National Park or elsewhere in the parks.

Day use

Day use areas, typically picnic facilities or sites for interpretation and education, are often the main destination for the majority of visitors to parks. Saltwater National Park provides three popular day use areas as set out in Table 3.

Peak visitation occurs during public and school holidays, particularly in the warmer months when suitable surfing conditions occur at Saltwater Headland and adjacent beaches.

Table 3: Day use/picnic areas in Saltwater National Park

Day use area	Vehicle spaces	Site features	Facilities
Saltwater Headland	80	Boat ramp, lookout, start of walking track, pedestrian beach access, surfing access	Tables, toilets (disabled access), information, water
Saltwater MOU camping area	40	Boat ramp, pedestrian beach access	Tables, toilets (disabled access), information, water
Saltwater picnic area	90	Lookout, start of walking track, pedestrian beach access	Tables, toilets (disabled access), shelters, information, water, gas barbecues

Wood fires are not permitted within the parks except for Aboriginal cultural purposes in accordance with the MOU in Saltwater National Park.

Bushwalking

Bushwalking allows visitors to be in close contact with the environment and can increase understanding and enjoyment of parks and the environment generally. The parks provide a range of bushwalking opportunities with varying degrees of social interaction, physical challenge and self-reliance and within a number of environmental settings. The most popular existing tracks are the Five Islands Track on the northern shore of Khappinghat Creek and the Saltwater Headland Walk.

There is potential to expand bushwalking opportunities by converting existing vehicle tracks in low, swampy areas and areas of sensitive vegetation adjoining Khappinghat Creek to walking tracks. NPWS also supports re-establishing the traditional Aboriginal walking route from Purfleet to Saltwater where the route is within the parks (see Section 3.4). Walking tracks provided in the parks are described in Table 4 and shown on Map 1.

Table 4: Bushwalking tracks in the parks

Walking track name	Location	Setting	Distance	Current standard*	Proposed standard*
Five Islands Track	Saltwater day use area to Five Islands in Khappinghat Ck	Coastal heath/forest	2.4km return	Class 4	Class 4
Khappinghat Creek Track**	Between Duckhole Gully, Allard Ck and Khappinghat Ck	Coastal forest/ estuary	6km loop	Class 5	Class 4
Manning** Coastal Walk	Saltwater Headland, Saltwater Beach, Wallabi Beach	Beach/ rainforest	0.4km one way	Class 6	Class 3
Moor Creek Track	East of Moor Creek	Coastal forest/ estuary	2.3km return	Class 5	Class 4
Saltwater Headland Track	Saltwater Headland	Rainforest	0.7km return	Class 3	Class 3

* The Australian Standard for walking tracks (AS 2156.1–2001) has been used as the basis for this track classification system. Refer to this standard for the complete details for each class of track. The names given to each class of track have been applied for ease of use and comprehension and are not derived from the standard.

** Existing vehicle trails to become walking tracks (see Map 1)

Cycling

In the past there has been only a low level of cycling activity in the parks but over recent years the demand for cycling and mountain biking has increased considerably. This is partly due to the loss of cycling opportunities in nearby state forests, which have been prioritised for logging. The most popular areas for cycling are located in the eastern portions of the parks close to the population centres of Old Bar, Wallabi Point and Hallidays Point.

In accordance with NPWS policy and the *Sustainable Mountain Biking Strategy* (OEH 2011b), single-track mountain biking is not allowed in Khappinghat Nature Reserve as it is inconsistent with the management principles for this category of reserve. Recreational cycling is permitted only on specified management trails in nature reserves where it will not degrade natural or cultural heritage values. Cycling is allowed on park roads and management trails in Khappinghat National Park and on park roads in Khappinghat Nature Reserve as shown on Map 2.

Horse riding

Horse riding is a popular recreational activity that has cultural associations for many Australians. Due to the extensive network of roads, and adjacent rural holdings, horse riding is historically well established and widespread throughout the parks on roads, management trails and on beaches. Horse riding is allowed in Khappinghat National Park on park roads and management trails as shown on Map 2.

Boating and fishing

Boat launching facilities are provided within the parks at Wallabi Beach, Saltwater MOU camping area, Ramp Road off Byamee Road and Magpie Creek (see Map 1). Informal boat access occurs at Duckhole Gully, Magpie Creek, Muddy Creek, Moor Creek and Khappinghat Creek and is causing erosion.

Members of the local community use the area for both recreational and commercial fishing and crabbing. Fish species targeted in the park and surrounding waters include whiting (*Sillago ciliata*), mullet (*Mugil cephalus*), flathead (*Platycephalus arenarius*), mullaway (*Argyrosomus japonicus*) and bream (*Acanthopagrus* spp.). Mud crabs (*Scylla serrata*) are also caught in Khappinghat Creek and its tributaries. Both recreational and commercial fishing, including crabbing, requires a licence from the Department of Primary Industries (see also Section 5.2).

Group activities

Group activities can provide opportunities for people who would otherwise not be able to experience the parks and can promote environmental understanding and support for conservation. Large groups can, however, have an environmental impact and can restrict opportunities for independent visitors.

Organised group activities of a commercial nature require licensing under the National Parks and Wildlife Regulation. Non-commercial, large-scale, organised group activities may also require consent under the Regulation. All activities must be consistent with the management principles for the parks and be compatible with the parks' natural and cultural heritage values. Applications will be assessed in accordance with relevant NPWS policies and procedures and in consultation with the Saltwater Management Advisory Committee as relevant.

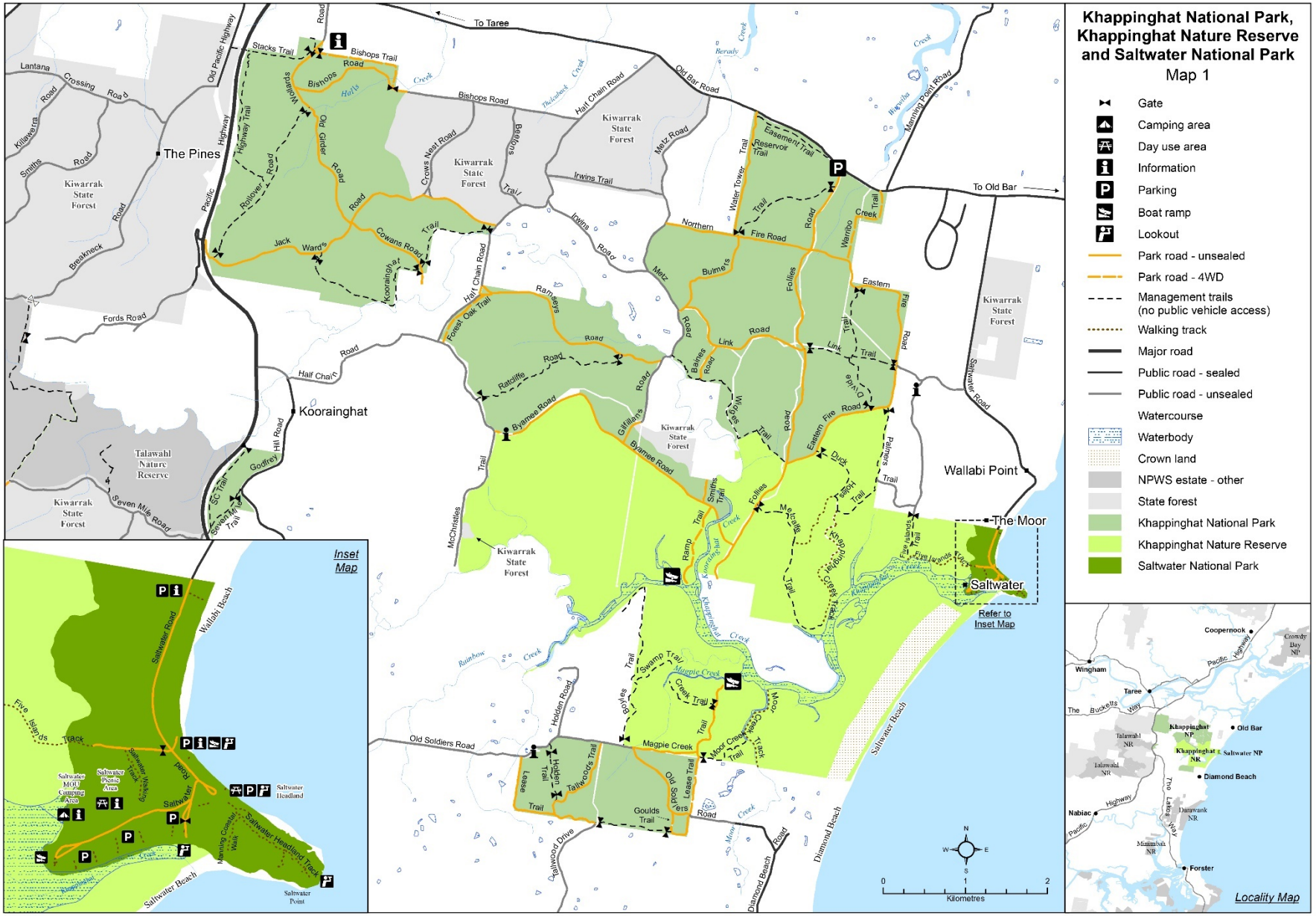
A surf school operates under licence from Saltwater National Park each summer but in general, the demand for organised group activities is low.

Issues

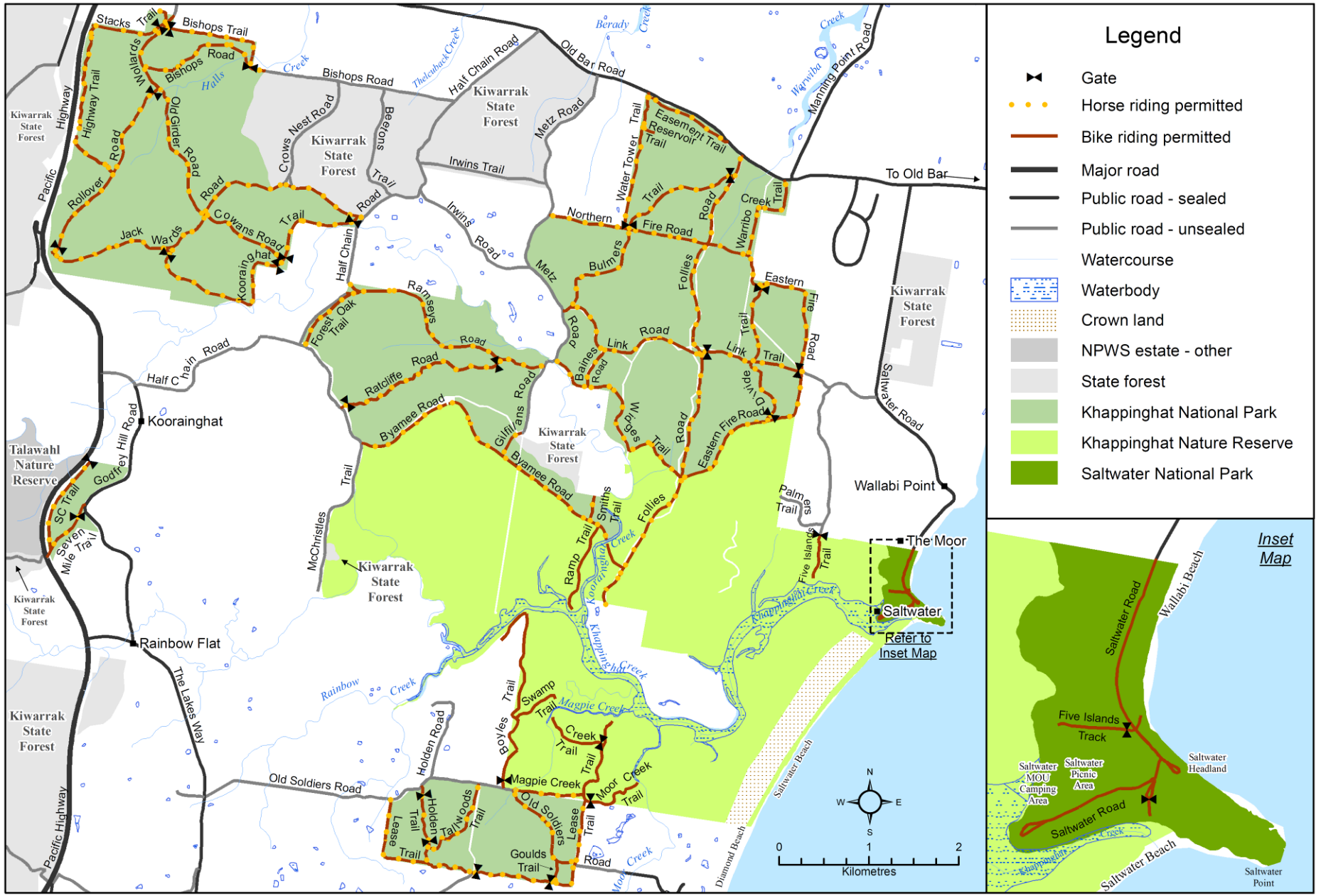
- Vehicle use and horse riding on roads and management trails particularly in low, swampy areas is contributing to soil erosion, turbidity and damage to sensitive vegetation.
- Informal, vehicle-based boat launching is causing erosion along the environmentally sensitive foreshores of Duckhole Gully, Magpie Creek, Moor Creek and Khappinghat Creek.

Desired outcomes

- Visitor use is appropriate and ecologically sustainable.
- Visitor opportunities encourage appreciation and awareness of the parks' values and their conservation.
- Negative impacts of visitors on the parks' values are minimised.
- Facilities and activities are planned and managed to provide a satisfying visitor experience and minimise impacts.
- Commercial activities are provided in an ecologically sustainable manner and undertaken in accordance with NPWS leasing/licensing requirements.
- There are no unacceptable impacts on the natural and cultural heritage values of the parks or on other users.



Map 1 Khappinghat National Park, Khappinghat Nature Reserve and Saltwater National Park



Map 2 Cycling and horse riding routes in Khappinghat National Park and Khappinghat Nature Reserve

Management response

3.6.1 Provide and promote opportunities for appropriate visitor use of the parks.

3.6.2 Permit public vehicular access to the park roads shown on Map 1, however, access may be restricted to prevent damage during periods of wet weather and/or to ensure public safety.

3.6.3 Provide for organised group visits, subject to limits on numbers and other conditions under prior NPWS consent if necessary, to minimise impacts.

3.6.4 Allow camping at Saltwater in accordance with the MOU between NPWS and the Saltwater Tribal Council.

Day use

3.6.5 Manage day use areas in accordance with Table 3.

Bushwalking

3.6.6 Maintain walking tracks in accordance with Table 4.

3.6.7 Upgrade the Manning Coastal Walk, Moor Creek Walking Track and Khappinghat Creek Walking Track to improve visitor safety and amenity and to protect fragile environments.

Cycling

3.6.8 Permit cycling on park roads and some management trails as shown on Map 2.

3.6.9 Signpost roads and trails in the parks where cycling is permitted.

3.6.10 Close roads and trails to cycling where there is unacceptable environmental impact or risk to cyclists and other users.

Horse riding

3.6.11 Permit horse riding in Khappinghat National Park on park roads and management trails as shown on Map 2. Horse riding will not be permitted in Khappinghat Nature Reserve and Saltwater National Park.

3.6.12 Do not permit camping with horses.

3.6.13 Require prior written consent from NPWS for horse riding that is part of a competition or large-scale, organised activity (including non-commercial activities). All commercial activities require a licence. Encourage event organisers to use temporary signage to indicate when a horse riding event is underway.

3.6.14 Signpost roads in the parks on which horse riding is permitted.

3.6.15 Monitor the environmental impacts of horse riding in the parks, and implement measures where necessary to address unacceptable impacts. This includes establishing photo monitoring points at suitable locations as well as general observation along the approved route.

3.6.16 Close roads and trails to horse riding where there is unacceptable environmental impact or risk to horse riders and other users.

Boating and fishing

3.6.17 Provide boat launching facilities at Magpie Creek, Ramp Road, Saltwater MOU camping area and Wallabi Beach in accordance with Map 1. Upgrade and/or implement stabilisation measures at these sites to minimise erosion.

3.6.18 Close and rehabilitate informal boat launching sites.

Leasing/licensing

3.6.19 Where consistent with this plan, issue licences with conditions for group activities and commercial activities (other than commercial fishing which is managed by the Department of Primary Industries, see Section 5.2).

3.7 Information and education

Information bays are provided in Saltwater National Park in both the day use and MOU camping area. Interpretation is provided at Magpie Creek addressing particular issues regarding the conservation importance of wetland areas and minimum impact public use.

Saltwater National Park is a popular destination for school tours, adult education and other community groups. There is a demand for Aboriginal heritage information and experiences provided by local Aboriginal people.

The parks are surrounded by resorts and other holiday destinations so there is considerable potential for forming partnerships with other organisations for developing educational activities. Expansion of NPWS Discovery programs will be considered.

Issues

- There is a need to supply and maintain high-quality, relevant educational material.
- There is a need for ongoing education on the importance of the parks' natural and cultural heritage values.
- There is a shortage of available, trained Aboriginal tour guides.

Desired outcomes

- Visitors are better informed about the parks' values, management and threats.
- Aboriginal cultural heritage information is provided by local Aboriginal tour guides.
- Educational material is informative and provided in relevant media and at appropriate locations.

Management response

3.7.1 Complete, regularly review and maintain information displays in the parks.

3.7.2 Encourage and support education and training of local Aboriginal tour guides and the licensing of ecotourism partnerships with the local Aboriginal community.

3.7.3 Install signs with advice for visitors, including information about minimum impacts, at locations where there is a threat to natural and cultural values.

3.7.4 Provide regulatory signage and interpretation in Khappinghat National Park, Khappinghat Nature Reserve and Saltwater National Park to explain what uses are permissible and the reasons why.

4. Threats

4.1 Pests

Pest species are plants, animals and pathogens that have negative environmental, economic and social impacts; commonly they are introduced species but can include native species not endemic to the location. Pests can have impacts across the range of park values, including impacts on biodiversity, cultural heritage, catchment and scenic values.

NPWS prepares regional pest management strategies that identify pest species across that region's parks. These strategies also identify priorities for control, including actions listed in the *Biodiversity Conservation Program* (see Sections 3.2 and 3.3), threat abatement plans, and other strategies such as the NSW *Biodiversity Priorities for Widespread Weeds* (NSW DPI & OEH 2011) and the *NSW Biosecurity Strategy 2013-2021* (DPI 2013).

The NPWS pest management strategy for the lower north coast region (OEH 2013b) identifies pest species and priority programs for the parks. The overriding objective of the pest management strategy is to minimise adverse impacts of introduced species on biodiversity and other park and community values while complying with legislative responsibilities. The strategy also identifies where other site- or pest-specific plans or strategies are needed to provide a more detailed approach.

The *Biosecurity Act 2015* and regulations provide specific legal requirements for the prevention, eradication or containment of state-level priority weeds. These requirements apply equally to both public and privately owned land. A regional strategic weed management plan prepared under the *Biosecurity Act 2015* identifies those pest plants that are being prioritised for management action, investment and compliance effort within the Hunter Local Land Services region (Hunter LLS 2017). These priorities will be implemented via the relevant NPWS pest management strategy.

The pest management strategy identifies a number of pest species as occurring in the parks. Weeds and pest animals recorded in the parks are detailed in Table 5.

Table 5: Weed and pest animals recorded in the parks

Common name	Scientific name	Comment
Weeds		
Aloe	*Aloe arborescens*	Localised – Saltwater Headland and where garden refuse is dumped
Asparagus fern~	*Asparagus aethiopicus*	Heavy infestation – Saltwater National Park
Bitou bush~	*Chrysanthemoides monilifera* subsp. *rotundata*	Concentrated – dunal systems Saltwater Beach, Saltwater Headland and Wallabi Beach. Increasing isolated patches further inland
Blackberry ~#	*Rubus fruticosus* agg.	Isolated – Saltwater Headland
Cape ivy	*Delairea odorata*	Localised – Saltwater day use and MOU camping area
Century plant	*Agave americana*	Localised – Saltwater Headland
Common thornapple	*Datura stramonium*	Isolated occurrences – disturbed areas
Coral tree	*Erythrina* x *sykesii*	Isolated occurrences – disturbed areas

Common name	Scientific name	Comment
Crofton weed>	*Ageratina adenophora*	Localised – in moist gullies
Giant Parramatta grass#	*Sporobolus fertilis*	On roads and in other disturbed areas
Glory lily#	*Gloriosa superba*	Isolated occurrences – disturbed areas
Golden wreath wattle	*Acacia saligna*	Minor occurrence associated with adjacent mining rehabilitation site at Diamond Beach
Lantana~	*Lantana camara*	Widespread
Morning glory	*Ipomoea indica*	Localised – Saltwater day use and MOU camping area
Mother of millions#	*Bryophyllum delagoense*[#]	Saltwater National Park
Prickly pear >	*Opuntia stricta*	Localised – Saltwater Beach and Saltwater Headland
Resurrection plant	*Bryophyllum pinnatum*	Localised – Saltwater Headland
Arsenic bush	*Senna septemtrionalis*	Heavy infestation – Saltwater National Park
Senna	*Senna pendula*	Widespread, particular problem in littoral rainforest and coastal areas
Spiny rush	*Juncus acutus*	Localised - Khappinghat Creek
Trad	*Tradescantia albiflora*	Localised – Saltwater Headland
Whisky grass	*Andropogon virginicus*	Widespread on roads and in other disturbed areas
Pest animals		
Black rat	*Rattus rattus*	Widespread
Dog	*Canis lupus familiaris*	Widespread – Khappinghat Nature Reserve, Khappinghat National Park
European rabbit	*Oryctolagus cuniculus* ~	Localised – Saltwater day use and MOU camping area. Dune systems in Khappinghat Nature Reserve
Feral cat	*Felis catus*	Widespread
Feral goat	*Capra hircus*	Isolated – Khappinghat Creek
Fox	*Vulpes vulpes*	Widespread
Rusa deer	*Cervus timorensis*	Isolated – Khappinghat Creek

~ Identified as a state level priority weed under the *Biosecurity Act 2015*
# Identified as a regional level priority weed (Hunter LLS 2017)
> Identified as an Additional species of concern (Hunter LLS 2017).
~ Declared 'pest' under the *Local Land Services Act 2013*

The parks are susceptible to weed invasion because of the large edge-to-area ratio and through previous disturbance history. Disturbances include forestry activities such as the establishment of non-native plantations and logging, sand mining and road construction prior to the reservation of the parks.

Key threatening processes listed under the BC Act, which apply to pest animal and plant species in the parks include:

- invasion of native plant communities by bitou bush (NSW SC 1999)
- invasion of native plant communities by exotic perennial grasses (NSW SC 2003a)
- invasion, establishment and spread of lantana (NSW SC 2006a)
- invasion and establishment of exotic vines and scramblers (NSW SC 2006b) (particularly in Saltwater National Park)
- predation by feral cats (NSW SC 2000c)
- predation by the European red fox (NSW SC 1998)
- introduction and establishment of exotic rust fungi of the order *Pucciniales pathogenic* on plants of the family Myrtaceae (NSW SC 2011).

Integrated weed management programs using biological control agents and chemical and physical control are implemented on lantana and bitou bush including aerial spraying of bitou bush on the coast of the parks. Four transects have been established on the foredune of Saltwater Beach to monitor the effectiveness of bitou bush control strategies and the recovery of native vegetation. Exotic perennial grasses including the giant Parramatta grass (*Sporobolus fertilis*) are subject to chemical control in areas where vehicle access is possible.

A number of recovery actions are being applied to the Littoral Rainforest Endangered Ecological Community within the parks. Recovery actions include bush regeneration programs to assist with the restoration of the remnant rainforest on Saltwater Headland. Aerial and ground-based weed control actions have also been implemented for bitou bush in accordance with the *Priorities Action Statement* on the perimeter of the littoral rainforest.

A mixed hardwood and mixed softwood plantation adjacent to Byamee Road is comprised of Gympie messmate (*Eucalyptus cloeziana*), lemon-scented gum (*Corymbia citriodora*), Tenterfield woollybutt (*E. banksii*) and non-native softwood species including loblolly pine (*Pinus taeda*), slash pine (*P. elliottii*), Monterey pine (*P. radiata*), Caribbean pine (*P. caribaea*) and smooth-barked Mexican pine (*P. pseudostrobus*). In 2008 this plantation was clear-felled to prevent the spread of these non-endemic and non-native plant species into the parks. However, some non-endemic seedlings are re-establishing at this site. The other hardwood plantations comprise species native to the mid north coast of New South Wales and are found growing naturally in the parks. These plantations are gradually regenerating and have been retained.

Bitou bush

Bitou bush is a native of South Africa. It is listed as one of the Commonwealth Government's Weeds of National Significance. Invasion by bitou bush leads to a decline in the species diversity of affected plant communities, and the native animals that depend on them. Bitou bush readily invades a wide variety of disturbed and undisturbed coastal plant communities, out-competing native vegetation.

A threat abatement plan has been prepared (DEC 2006), which lists actions to abate, ameliorate or reduce the threat posed by bitou bush to threatened species, populations and ecological communities. In the parks, bitou bush occurs adjacent to Saltwater Beach, Wallabi Beach and on the perimeter of the Littoral Rainforest at Saltwater Headland. These areas are identified as high priority sites in the threat abatement plan. Bitou bush is also invading forested areas around Magpie Creek. The invasion by bitou bush threatens the habitat of white-flowered wax plant, dwarf heath casuarina and endangered Littoral Rainforest within

the parks. Aerial spraying and ground-based physical and chemical control actions have been implemented for bitou bush in accordance with the *Priorities Action Statement* on the coast of the parks and the perimeter of the littoral rainforest at Saltwater Headland.

Lantana

Lantana is a large flowering shrub native to Central and South America. Lantana is a vigorous invader of disturbed areas, often forming dense thickets. It is spread mainly by birds and thrives in warm environments with high rainfall, where the weed grows along forest edges, penetrates disturbed rainforest and invades open eucalypt woodlands and pastures. Lantana is a state level priority weed.

A national *Plan to Protect Environmental Assets from Lantana* (Biosecurity Queensland 2010) has been developed, which establishes national conservation priorities for the control of lantana. It identifies the research, management and other actions needed to ensure the long-term survival of native species and ecological communities affected by the invasion of lantana.

Lantana is widespread in the parks and the focus for its control is on its impact on littoral rainforest at Saltwater Headland.

Foxes

Foxes suppress native animal populations, particularly medium-sized ground-dwelling and semi-arboreal mammals, ground-nesting birds and freshwater turtles. Foxes have also been implicated in the spread of a number of weed species such as bitou bush and blackberry and are known to prey on domestic stock, including lambs and poultry.

Predation by the European red fox is a key threatening process under the BC Act (NSW SC 1998) and was listed in 2000 under the EPBC Act (DoE 2009). The NSW Fox Threat Abatement Plan has the primary objective of establishing long-term control programs to protect priority threatened native animals species and populations (OEH 2011a). Foxes are being controlled at priority sites across New South Wales to protect biodiversity.

Together with wild dogs, foxes are known to have a negative impact on the biodiversity of the parks and neighbouring agricultural land. A program to control foxes to protect endangered shorebirds at the Manning River entrances began in 2002. Fox control and monitoring is undertaken in accordance with the site plan under the Fox Threat Abatement Plan (OEH 2011a).

Wild dogs

Wild dogs are known to occur within the parks. Wild dogs include feral dogs, dingoes and their hybrids, and are a declared pest under the *Local Land Services Act 2013* due to their impacts on livestock. NPWS therefore has a statutory obligation to control wild dogs on its estate. Wild dogs may also have significant impacts upon the distribution and abundance of native wildlife.

Reactive programs to control wild dogs are required from time to time in cooperation with other landholders, land management agencies and Hunter Local Land Services.

Myrtle rust

Myrtle rust is a plant disease caused by the exotic fungus *Uredo rangelii*. It was first detected on the Central Coast in 2010 and has established through coastal New South Wales from the Clyde River north into Queensland. Myrtle rust infects young actively growing shoots, leaves, flower buds and fruits of plants in the family Myrtaceae, including the genera *Eucalyptus*,

Angophora, *Callistemon* and *Melaleuca*. The spores of myrtle rust are spread by wind, animal dispersal and human activity.

Myrtle rust has been identified within Saltwater National Park and poses a threat to its biodiversity.

A plan outlining how myrtle rust will be managed on national park estate has been developed and incorporates strategies to limit the spread of myrtle rust and minimise impacts to threatened species and ecological communities. Control of myrtle rust was undertaken on infected plants in Saltwater National Park in 2011 and no further outbreaks have occurred. Monitoring for myrtle rust will continue.

Desired outcomes

- Pest plants and animals are controlled and where possible eliminated.
- Negative impacts of introduced species on park values are minimised.
- Negative impacts of pest animals on park values are minimised.
- Dieback caused by myrtle rust is minimised.

Management response

4.1.1 Manage pest species in accordance with the regional pest management strategy. Priority will be given to bitou bush, lantana, rainforest weeds impacting Littoral Rainforest, wild dog and fox control.

4.1.2 Survey the threatened ecological communities and other high priority vegetation within the parks to determine the presence and extent of pest plant species and identify biodiversity most at risk.

4.1.3 Seek the cooperation of neighbours in implementing weed and pest control programs. Undertake control in cooperation with MidCoast Council, Hunter Local Land Services and Forestry Corporation of NSW.

4.1.4 Monitor for re-infestation of non-endemic plant species at the Byamee Road plantation and implement control as required.

4.1.5 Undertake ongoing control programs for bitou bush, lantana, rainforest weeds and giant Parramatta grass.

4.1.6 Monitor state level and regional level priority weeds and significant environmental weeds and their impacts. Treat any new outbreaks where possible.

4.1.7 Implement threat abatement plans relevant to the parks.

4.1.8 Implement fox control programs in accordance with the NSW Fox Threat Abatement Plan to limit fox predation on endangered shorebird nesting habitat in the Manning River entrances.

4.1.9 Work with neighbouring landholders, Hunter Local Land Services and Forestry Corporation of NSW to undertake cooperative fox and wild dog control programs when required.

4.1.10 Monitor the effectiveness of myrtle rust control at Saltwater National Park and revisit sites periodically for follow-up treatment and maintenance.

4.2 Fire

The primary objectives of NPWS fire management are to protect life, property, community assets and cultural heritage from the adverse impacts of fire, while also managing fire regimes in parks to maintain and enhance biodiversity. NPWS also assists in developing fire

management practices that contribute to conserving biodiversity and cultural heritage across the landscape, and implements cooperative and coordinated fire management arrangements with other fire authorities, neighbours and the community (OEH 2013a).

Fire is a natural feature of many environments and is essential for the survival of some plant communities. However, inappropriate fire regimes can lead to loss of particular plant and animal species and communities. High frequency fires have been listed as a key threatening process under the BC Act (NSW SC 2000b).

The fire history in the parks prior to reservation is not fully recorded. Fires occurring since reservation are primarily caused by human involvement. Of the six fires that have occurred since 2002, only one is attributed to natural causes. A total of 541 hectares have burnt in unplanned fires in this period. In 2008 arson was responsible for a one-hectare fire on Saltwater Headland, which has had an ongoing impact on the conservation and management of the endangered littoral rainforest at that location.

Built assets that are vulnerable to fire in the parks include overhead powerlines, infrastructure associated with water supply and telecommunications, boundary fences with neighbouring rural and rural residential properties, visitor and park management infrastructure. Significant natural values that are also particularly vulnerable to the effects of fire include subtropical rainforest, littoral rainforest and other wet forest associations.

A fire management strategy that defines the fire management approach for the parks has been prepared (DEC 2005). The strategy shows key assets within and adjoining Khappinghat Nature Reserve and Khappinghat National Park including sites of natural and cultural heritage value, fire management zones and fire control advantages such as management trails and water supply points. It also contains fire regime guidelines for conservation of the parks' vegetation communities.

A review of the fire management strategy will incorporate new targets for fuel management activities, roads and trails as shown in Map 1 and will also include a fire management strategy for Saltwater National Park. The fire management strategy for Saltwater National Park will focus on exclusion of fire from littoral rainforest and mechanical fuel reduction in the vicinity of visitor infrastructure.

NPWS maintains cooperative arrangements with surrounding landowners and the Rural Fire Service and is actively involved with the Mid Coast Bush Fire Management Committee. Cooperative arrangements include fire planning, fuel management and information sharing. Hazard reduction programs, ecological burning proposals and fire trail works proposals are submitted annually to the bush fire management committee.

Desired outcomes

- Negative impacts of fire on life, property and the environment are minimised.
- The potential for spread of bushfires on, from, or into the parks is minimised.
- Fire regimes are appropriate for conservation of native plant and animal communities.

Management response

4.2.1 Implement the fire management strategy for the parks and review and update it as required. The strategy will prioritise the exclusion of fire from littoral rainforest and mechanical fuel reduction in the vicinity of visitor infrastructure.

4.2.2 Continue to be involved in the Mid Coast Bush Fire Management Committee and maintain cooperative arrangements with local Rural Fire Service brigades, Forestry

Corporation of NSW, Fire and Rescue NSW, other fire authorities and surrounding landowners in regard to fuel management and fire suppression.

4.2.3 Suppress unplanned fires in the parks in accordance with the fire management strategy.

4.2.4 Manage the parks to protect biodiversity in accordance with the identified fire regimes in the fire management strategy.

4.2.5 Rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.

4.2.6 Monitor the ability of native plants to recover between fires and review regimes where relevant.

4.3 Climate change

Human-induced climate change has been listed as a key threatening process under the BC Act (NSW SC 2000a) and the associated loss of habitat is listed under the EPBC Act (TSSC 2001). The latest information on projected changes to climate are from the NSW and ACT Regional Climate Modelling (NARClim) project (OEH 2014). The climate projections for 2020–39 are described as 'near future'; and projections for 2060–79 are described as 'far future'. The snapshot shown in Table 6 is for the north coast region, which includes the parks (OEH 2014).

Table 6: North coast region climate change snapshot

Projected temperature changes	
Maximum temperatures are projected to **increase** in the near future by 0.4–1.0°C	Maximum temperatures are projected to **increase** in the far future by 1.5–2.4°C
Minimum temperatures are projected to **increase** in the near future by 0.5–1.0°C	Minimum temperatures are projected to **increase** in the far future by 1.6–2.5°C
The number of hot days will **increase**	The number of cold nights will **decrease**
Projected rainfall changes	
Rainfall is projected to **decrease** in winter	Rainfall is projected to **increase** in spring and autumn
Projected Forest Fire Danger Index changes	
Average fire weather is projected to **increase** during summer and spring	Severe fire weather days are projected to **increase** in summer and spring

Source: OEH 2014

The projected increases in temperature, number of hot days and severe fire weather days (OEH 2014) are likely to influence bushfire frequency and intensity across the north coast region and result in an earlier start to the bushfire season (DECCW 2010). Higher rainfall in spring and autumn is likely to accelerate all forms of soil erosion across the region and increase runoff at these times of year (DECCW 2010). A particular concern for the parks is the likely increase in heavy rain events and cyclonic winds associated with east coast lows and sea level rise (DECCW 2010).

These changes are likely to lead to greater soil erosion, drier conditions, more extreme short-term droughts, greater frequency of fires, coastal recession and changed flooding behaviour (DECCW 2010). Beach dune recession is already a significant issue on the coastline to the north of the parks particularly at Old Bar. Beach dune recession and erosion on Saltwater

Beach and Wallabi Beach has the potential to cause significant damage to the natural and cultural heritage values in these parts of the parks in the future.

Climate change may significantly affect biodiversity by changing population size and distribution of species, modifying species composition, and altering the geographical extent of habitats and ecosystems. The potential impact of climate change on the parks is difficult to assess since it depends on the compounding effects of other pressures, particularly barriers to migration and pressure from introduced animals. Species most at risk are those unable to migrate or adapt, particularly those with small population sizes or with slow growth rates. In Saltwater National Park and the coastline of Khappinghat Nature Reserve sea level rise could substantially impact estuarine and foreshore ecosystems through flooding, which will alter estuarine and other lowland communities, resulting in a decline of fish species, shorebird habitat loss and alteration in shorebird behaviour (DECCW 2010). The lower reaches of Khappinghat Creek are likely to become increasingly saline, resulting in changes to fish nursery conditions and species composition of the estuary. Acid sulfate soils are likely to continue to shed acid in disturbed parts of the coastal floodplains as a result of increased seasonality of rainfall but this effect will probably reduce over time due to successive flood events and a continuing rise in sea level.

Programs to reduce the pressures arising from other threats, such as habitat fragmentation, invasive species, bushfires and pollution, will help reduce the severity of the effects of climate change.

Desired outcomes

- Beach recession is monitored.
- The effects of climate change on natural systems are minimised.

Management response

4.3.1 Undertake fire, pest and weed management programs to increase the parks' ability to cope with future disturbances, including climate change, and encourage research into appropriate indicators to monitor the effects of climate change.

4.3.2 Monitor coastline erosion and implement appropriate dune stability programs when required.

4.4 Visitor impacts

A range of illegal and unauthorised activities occur in the parks and conflict with legitimate visitor use. Illegal dumping of household and commercial rubbish is common in the bushland adjoining Old Bar Road, Old Soldiers Road and Woollards Road. Dumped waste includes garden waste, building materials, asbestos and general household garbage. A number of cars have also been dumped and set alight, creating a fire risk.

Illegal collection of firewood has been an ongoing issue, particularly in Khappinghat National Park. This practice removes habitat for a range of native animal and plant species and is listed as a key threatening process under the BC Act (NSW SC 2003b).

Unrestricted vehicle and trail bike access in parts of the parks has led to extensive degradation and damage to conservation values. This is particularly evident in low lying areas, including around Duckhole Gully and Moor Creek. In several places, substantial remedial and restoration works will be required to address existing erosion. A number of these tracks and trails will be closed and rehabilitated, or will not be available for public vehicle and trail bike access (see Map 1 and Section 5.1).

Desired outcomes

- Illegal and unauthorised activities in the parks are reduced and/or eliminated where possible.

Management response

4.4.1 Undertake routine patrols and law enforcement.

4.4.2 Develop and implement an education program regarding illegal and unauthorised activities.

5. Management operations and other uses

5.1 Management facilities and operations

The road and trail network was developed prior to the reservation of the parks for forestry and to provide access to private property and Khappinghat Creek. Some roads within the parks are vested in the Minister under Part 11 of the NPW Act to ensure a continuation of access arrangements to neighbouring private land including private inholdings and Kiwarrak State Forest. These include Old Soldiers Road, Goulds Road, Byamee Road, Gilfillans Road, Smiths Road, Follies Road and sections of Metz Road within Khappinghat National Park (see Map 1).

An area of vacant Crown land that was formerly a sand mining lease extends the length of Saltwater Beach on the edge of Khappinghat Nature Reserve as far as Khappinghat Creek. The land is bordered by the reserve on three sides (see Map 1). NPWS has had an ongoing interest in the rehabilitation, protection and incorporation of this land into Khappinghat Nature Reserve since the early 1990s. As a significant inholding in a sensitive coastal environment, NPWS would prefer to see this area of vacant Crown land added to the reserve, subject to the determination of any Aboriginal land claim. There are also a number of Crown road reserves within the parks that are not required for future public road access. These could be added to the parks.

The Five Islands Trail is landlocked by neighbouring private property. NPWS is investigating options which will allow NPWS vehicles to travel between Palmers Trail to Five Islands Trail for fire and pest management, and access to a traditional area by traditional owners.

Straying stock from adjoining land are occasionally found in the parks in the vicinity of Jack Wards Road, Follies Road and Godfrey Hill Road in Khappinghat National Park.

A visitor data system is installed in the parks on Saltwater Road near the entry to Saltwater National Park. The system monitors vehicle entry and exit to Saltwater National Park and provides information about the level of visitor use for management and reporting purposes. Other NPWS infrastructure includes an underground water pipeline adjacent to Saltwater Road, which services the drinking taps, toilet facilities and beach showers at Saltwater National Park.

Issues

- The extensive road and trail network that was developed for forest management activities prior to the reservation of the parks exceeds NPWS management requirements.
- The parks have a large edge-to-area ratio and a history of previous disturbance including sand mining north of Diamond Beach.
- Straying stock are occasionally found in the parks.
- Five Islands Trail is landlocked by neighbouring private property.
- There are a number of Crown road reserves within the parks that are not required for future public road access.

Desired outcomes

- The road and management trail network within the parks supports park management operations, legitimate park user requirements and access to private property.

- The vacant Crown land between Saltwater Beach and Khappinghat Nature Reserve is incorporated into the parks.
- Legal access is provided for NPWS vehicles to Five Islands Trail.
- Boundary fences are adequate to keep stock out of the parks.

Management response

5.1.1 Maintain the park road and trail network in the parks as per Map 1. Roads and trails will be monitored and areas showing signs of unacceptable damage or a risk to park users will be prioritised for repair or closed if not required for park management.

5.1.2 Encourage construction and maintenance of boundary fences by neighbouring landowners to exclude stock from the parks. Fencing assistance may be provided in accordance with NPWS policy.

5.1.3 Seek secure legal, practical access for NPWS management operations on Palmers Trail and Five Islands Trail.

5.1.4 Seek reservation of the previously sand-mined Crown land north of Diamond Beach as an addition to Khappinghat Nature Reserve subject to the determination of any Aboriginal land claim. Rehabilitate this area as required.

5.1.5 Pursue reservation of Crown road reserves not required for future public road access as additions to the parks in consultation with Department of Industry - Lands and MidCoast Council.

5.2 Non-NPWS uses and operations

Apiary sites

Apiarists maintain honeybee hives seasonally within the parks, at four licensed bee sites located within Khappinghat National Park. These sites are recognised as existing interests under the NPW Act as they pre-date the park's reservation. NPWS policy on beekeeping allows existing sites to continue but does not allow any new or additional sites. The European honeybee (*Apis mellifera*) can have adverse impacts on some native plants and animals (Paton 1996) including poor flower pollination and competition with native nectar feeders.

Sites are limited in size and maintained by mowing or slashing. Access to apiary sites is via Jack Wards Road, Link Road and Metz Road. While no problems are currently known in the parks, hive sites may cause unacceptable environmental impacts or user conflicts in future. Where needed, NPWS will aim to negotiate relocation of hives to sites that allow the closure of trails or minimise the impact of the honeybees.

Fishing activities

All fishing activities in NSW waters are regulated under *Fisheries Management Act 1994* (FM Act). Both commercial and recreational fishing must be licensed by the Department of Primary Industries (DPI Fisheries). This applies to the Khappinghat Creek estuary within Khappinghat Nature Reserve and includes land-based activities (e.g. hauling of nets by hand), whether or not the fisher is situated below or above the mean high water mark.

Water reservoirs and pipeline

MidCoast Water owns infrastructure traversing Khappinghat National Park that was constructed before the reservation of the parks. This infrastructure includes reservoirs at Jack Wards Road and at Reservoir Trail south of Old Bar Road, and associated underground

water pipelines located south-east of the Jack Wards reservoir where they exit the parks en route to Forster. The reservoir on Reservoir Trail has a pipeline located to the north and is located parallel with the southern side of Old Bar Road.

This infrastructure is contained within easements under the NPW Act.

Transmission lines

Essential Energy has powerlines traversing the parks on Reservoir Trail, Byamee Road and Follies Road and underground powerlines at Jack Wards Road. This infrastructure services the MidCoast Water reservoirs at Jack Wards Road and Reservoir Trail as well as private property in the vicinity of Koorainghat Creek and Khappinghat Creek at Byamee Road, and private inholdings at the southern end of Follies Road.

Powerlines are also located adjacent to the boundary of Khappinghat National Park south of Old Bar Road and east of Follies Road. Vegetation clearing for maintaining this infrastructure occurs mostly inside the park boundary. These powerlines are not covered by a formal easement. In accordance with the *Electricity Supply Act 1995*, however, a network operator can operate and use the existing powerlines whether or not there is a formal easement in place.

Clearings and vehicle trails along the powerlines have significant environmental and visual impacts. No access or maintenance agreement currently exists with Essential Energy but the company must comply with the NPW Act and Regulations when carrying out any maintenance or replacement work and must obtain NPWS consent for certain works.

Telecommunications

Telstra and Optus optic fibre cables that pre-date reservation are located within the parks. These services were lawfully constructed pursuant to Commonwealth legislation, which provided an exemption at the time from the requirement for authorisation under state legislation. While maintenance of these facilities, as defined under the Commonwealth *Telecommunications Act 1997*, can be undertaken without NPWS approval, any works other than maintenance would require NPWS approval and licensing under the NPW Act.

Issues

- Clearings and vehicle trails along water pipelines, reservoirs and powerlines have significant environmental and visual impacts.
- No access or maintenance agreement currently exists with Essential Energy, Telstra or Optus.

Desired outcomes

- Apiary activities are managed to minimise impacts on natural and cultural values, and park infrastructure.
- Fishing activities are licensed under the FM Act.
- Water reservoirs and pipelines are managed to minimise impacts on park values.
- Transmission lines are managed to minimise impacts on park values.
- Existing optic fibre cables are managed to minimise impacts on park values.

Management response

5.2.1 Continue to license and manage the apiary sites within the parks in accordance with NPWS policy and licence conditions.

5.2.2 Work cooperatively with the Department of Primary Industries to ensure that activities licensed under the FM Act have minimal impact on the values of the parks.

5.2.3 Formalise an agreement with Essential Energy for the maintenance of existing powerlines that traverse the parks.

5.2.4 Monitor the implementation of maintenance agreements covering non-NPWS infrastructure to maintain adequate vegetation cover and minimise erosion potential.

5.2.5 Liaise with Telstra and Optus regarding maintenance or other works proposed for the optic fibre cables in the parks to ensure works comply with the NPW Act and Regulation.

6. Implementation

This plan of management establishes a scheme of operations for the parks. Identified activities for implementation are listed in Table 7. Relative priorities are allocated against each activity as follows:

- **High priority** activities are imperative to achieve the plan's objectives and desired outcomes. They must be undertaken in the near future to avoid significant deterioration in natural, cultural or management resources.
- **Medium priority** activities are necessary to achieve the objectives and desired outcomes but are not urgent.
- **Low priority** activities are desirable to achieve the objectives and desired outcomes but can wait until resources become available.
- **Ongoing** activities are undertaken on an annual basis or in response to an issue that arises.

This plan of management does not have a specific term and will stay in force until amended or replaced in accordance with the NPW Act.

Table 7: List of management responses

Plan ref.	Management response	Priority
3.1	**Geology, landscape and hydrology**	
3.1.1	Monitor sites of unregulated human trampling and implement dune stability programs such as fencing and brush-matting when required.	Medium
3.1.2	Provide and maintain public roads, park roads and management trails in accordance with Map 1.	High
3.1.3	Close and rehabilitate tracks and trails not shown on Map 1.	Medium
3.1.4	Monitor roads and trails, and close areas that are a risk to park users or are showing signs of unacceptable damage.	Medium
3.1.5	Monitor coastline erosion and implement appropriate dune stabilisation works when required.	Medium
3.2	**Native plants**	
3.2.1	Implement relevant strategies in the *Biodiversity Conservation Program* or threatened species, populations and ecological communities present in the parks.	Medium
3.2.2	Encourage surveys for threatened and significant plant species and ecological communities with priority given to predicted habitat for threatened species in the parks.	Medium
3.2.3	Allow for the continued natural return of endemic vegetation in all former plantations within the parks.	Ongoing
3.2.4	Revegetate parts of the MOU area to enhance adjoining Littoral Rainforest, Swamp Sclerophyll Forest and coastal heath communities in consultation with the Saltwater Management Advisory Committee.	Medium
3.3	**Native animals**	
3.3.1	Implement relevant strategies in the *Biodiversity Conservation Program* for threatened species, populations and ecological communities present in the parks.	Medium

Plan ref.	Management response	Priority
3.3.2	Encourage surveys for threatened and significant animal species with priority given to predicted habitat for threatened species in the parks.	Medium
3.3.3	Rehabilitate disturbed and/or degraded areas in the parks to restore structural diversity and habitat values for significant native animal populations.	Medium
3.4	**Aboriginal heritage**	
3.4.1	Continue to consult and involve relevant Aboriginal community organisations and custodial families in the management of Country, including the management of Aboriginal sites, places, cultural and natural values.	Ongoing
3.4.2	Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact Aboriginal sites or values.	Medium
3.4.3	Encourage further research into the Aboriginal cultural heritage values of the parks with the relevant Aboriginal community organisations and custodial families.	Low
3.4.4	Support relevant Aboriginal community organisations and custodial families to locate, map and interpret those sections of the Purfleet/Saltwater traditional walking route within the parks. Subject to a favourable environmental assessment and the support of adjoining landholders and land managers, delineate the walking route within the parks.	Medium
3.4.5	Continue joint management arrangements for Saltwater National Park and part of Khappinghat Nature Reserve in accordance with the MOU with the Saltwater Tribal Council.	Ongoing
3.4.6	Provide for meetings, ceremonies and camping by Aboriginal people in accordance with the MOU.	Ongoing
3.5	**Historic heritage**	
3.5.1	Record historic sites and assess their significance, with priority given to Palmers Cottage ruin and the pedestrian bridge over Saltwater Gully. Undertake emergency stabilisation works as required until the formal heritage assessment process is complete.	Medium
3.5.2	Continue to maintain the trail surrounding the Palmers Cottage ruin and undertake other activities necessary to protect the ruin from fire.	Medium
3.5.3	Undertake an archaeological survey and cultural assessment prior to all works with the potential to impact historic sites and places.	Medium
3.6	**Visitor use**	
3.6.1	Provide and promote opportunities for appropriate visitor use of the parks.	Ongoing
3.6.2	Permit public vehicular access to the park roads shown on Map 1, however, access may be restricted to prevent damage during periods of wet weather and/or to ensure public safety.	High
3.6.3	Provide for organised group visits, subject to limits on numbers and other conditions under prior NPWS consent if necessary to minimise impacts.	Ongoing
3.6.4	Allow camping at Saltwater in accordance with the MOU between NPWS and the Saltwater Tribal Council.	Ongoing
3.6.5	Manage day use areas in accordance with Table 3.	High
3.6.6	Maintain walking tracks in accordance with Table 4.	High

Plan ref.	Management response	Priority
3.6.7	Upgrade the Manning Coastal Walk, Moor Creek Walking Track and Khappinghat Creek Walking Track to improve visitor safety and amenity and to protect fragile environments.	Medium
3.6.8	Permit cycling on park roads and some management trails as shown on Map 2.	Ongoing
3.6.9	Signpost roads and trails in the parks where cycling is permitted.	Medium
3.6.10	Close roads and trails to cycling where there is unacceptable environmental impact or risk to cyclists and other users.	Ongoing
3.6.11	Permit horse riding in Khappinghat National Park on park roads and management trails as shown on Map 2. Horse riding will not be permitted in Khappinghat Nature Reserve and Saltwater National Park.	Ongoing
3.6.12	Do not permit camping with horses.	Ongoing
3.6.13	Require prior written consent from NPWS for horse riding that is part of a competition or large-scale, organised activity (including non-commercial activities). All commercial activities require a licence. Encourage event organisers to use temporary signage to indicate when a horse riding event is underway.	Ongoing
3.6.14	Signpost roads in the parks on which horse riding is permitted.	Medium
3.6.15	Monitor the environmental impacts of horse riding in the parks, and implement measures where necessary to address unacceptable impacts. This includes establishing photo monitoring points at suitable locations as well as general observation along the approved route.	High
3.6.16	Close roads and trails to horse riding where there is unacceptable environmental impact or risk to horse riders and other users.	Ongoing
3.6.17	Provide boat launching facilities at Magpie Creek, Ramp Road, Saltwater MOU camping area and Wallabi Beach in accordance with Map 1. Upgrade and/or implement stabilisation measures at these sites to minimise erosion.	Medium
3.6.18	Close and rehabilitate informal boat launching sites.	Medium
3.6.19	Where consistent with this plan, issue licences with conditions for group activities and commercial activities (other than commercial fishing which is managed by the Department of Primary Industries, see Section 5.2).	Ongoing
3.7	**Information and education**	
3.7.1	Complete, regularly review and maintain information displays in the parks.	Medium
3.7.2	Encourage and support education and training of local Aboriginal tour guides and the licensing of ecotourism partnerships with the local Aboriginal community.	Medium
3.7.3	Install signs with advice for visitors, including information about minimum impacts, at locations where there is a threat to natural and cultural values.	High
3.7.4	Provide regulatory signage and interpretation in Khappinghat National Park, Khappinghat Nature Reserve and Saltwater National Park to explain what uses are permissible and the reasons why.	High
4.1	**Pests**	
4.1.1	Manage pest species in accordance with the regional pest management strategy. Priority will be given to bitou bush, lantana, rainforest weeds impacting Littoral Rainforest, wild dog and fox control.	High

Plan ref.	Management response	Priority
4.1.2	Survey the threatened ecological communities and other high priority vegetation within the parks to determine the presence and extent of pest plant species and identify biodiversity most at risk.	Medium
4.1.3	Seek the cooperation of neighbours in implementing weed and pest control programs. Undertake control in cooperation with the MidCoast Council, Hunter Local Land Services and Forestry Corporation of NSW.	High
4.1.4	Monitor for re-infestation of non-endemic plant species at the Byamee Road plantation and implement control as required.	Medium
4.1.5	Undertake ongoing control programs for bitou bush, lantana, rainforest weeds and giant Parramatta grass.	High
4.1.6	Monitor state level and regional level priority weeds and significant environmental weeds and their impacts. Treat any new outbreaks where possible.	High
4.1.7	Implement threat abatement plans relevant to the parks.	High
4.1.8	Implement fox control programs in accordance with the NSW Fox Threat Abatement Plan to limit fox predation on endangered shorebird nesting habitat in the Manning River entrances.	High
4.1.9	Work with neighbouring landholders, Hunter Local Land Services and Forestry Corporation of NSW to undertake cooperative fox and wild dog control programs when required.	Ongoing
4.1.10	Monitor the effectiveness of myrtle rust control at Saltwater National Park and revisit sites periodically for follow-up treatment and maintenance.	Medium
4.2	**Fire**	
4.2.1	Implement the fire management strategy for the parks and review and update it as required. The strategy will prioritise the exclusion of fire from Littoral Rainforest and mechanical fuel reduction in the vicinity of visitor infrastructure.	Medium
4.2.2	Continue to be involved in the Mid Coast Bush Fire Management Committee and maintain cooperative arrangements with local Rural Fire Service brigades, Forestry Corporation of NSW, Fire and Rescue NSW and other fire authorities and surrounding landowners in regard to fuel management and fire suppression.	Ongoing
4.2.3	Suppress unplanned fires in the parks in accordance with the fire management strategy.	High
4.2.4	Manage the parks to protect biodiversity in accordance with the identified fire regimes in the fire management strategy.	High
4.2.5	Rehabilitate areas disturbed by fire suppression operations as soon as practical after the fire.	Medium
4.2.6	Monitor the ability of native plants to recover between fires and review regimes where relevant.	Medium
4.3	**Climate change**	
4.3.1	Undertake fire, pest and weed management programs to increase the parks' ability to cope with future disturbances, including climate change, and encourage research into appropriate indicators to monitor the effects of climate change.	High

Plan ref.	Management response	Priority
4.3.2	Monitor coastline erosion and implement appropriate dune stability programs when required.	Medium
4.4	**Visitor impacts**	
4.4.1	Undertake routine patrols and law enforcement.	High
4.4.2	Develop and implement an education program regarding illegal and unauthorised activities.	Low
5.1	**Management facilities and operations**	
5.1.1	Maintain the park road and trail network in the parks. Roads and trails will be monitored and areas showing signs of unacceptable damage or a risk to park users will be prioritised for repair or closed if not required for park management.	High
5.1.2	Encourage construction and maintenance of boundary fences by neighbouring landowners to exclude stock from the parks. Fencing assistance may be provided in accordance with NPWS policy.	Medium
5.1.3	Seek secure legal, practical access for NPWS management operations on Palmers Trail and Five Islands Trail.	Medium
5.1.4	Seek reservation of the previously sand-mined Crown land north of Diamond Beach as an addition to Khappinghat Nature Reserve subject to the determination of any Aboriginal land claim. Rehabilitate this area as required.	High
5.1.5	Pursue reservation of Crown road reserves not required for future public road access as additions to the parks in consultation with Department of Industry – Lands and MidCoast Council.	Low
5.2	**Non-NPWS uses and operations**	
5.2.1	Continue to license and manage the apiary sites within the parks in accordance with NPWS policy and licence conditions.	Medium
5.2.2	Work cooperatively with the Department of Primary Industries to ensure that activities licensed under the FM Act have minimal impact on the values of the parks.	Ongoing
5.2.3	Formalise an agreement with Essential Energy for the maintenance of existing powerlines that traverse the parks.	Medium
5.2.4	Monitor the implementation of maintenance agreements covering non-NPWS infrastructure to maintain adequate vegetation cover and minimise erosion potential.	Medium
5.2.5	Liaise with Telstra and Optus regarding maintenance or other works proposed for the optic fibre cables in the parks to ensure works comply with the NPW Act and Regulation.	Medium

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